

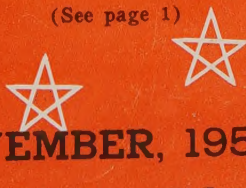


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the ILLINOIS ENGINEER



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(See page 1)



THE ILLINOIS ENGINEER NOVEMBER, 1951—VOLUME XXVII, NO. 11

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Of Professional Interest

THE ILLINOIS ENGINEER—THIS MONTH

The paper "Heavy Trucking and Its Effect on Highways," by M. E. Amstutz and published in this month's issue of the ILLINOIS ENGINEER, would be of interest to engineers at any time, but it is of current interest particularly because the constitutionality of the act covering the licensing of trucks in Illinois which was passed by the last state legislature, is now being tested in the courts.

Read, also, the reprinted material "From the N.S.P.E. Legislative Bulletin," concerning the activities of the Salary Stabilization Board (SSB). This is a matter that is of interest to both employer and employee engineer. See, also, a short article on the same subject, "Engineers' Pay Race to Get New Rules," printed in the Engineering News-Record for October 25, 1951, p. 28.

JUNIOR NOMINEES

The Board of Direction approved the Nominating Committee's selection of the two candidates for Junior Representative on the Board at its meeting, November 3rd.

Mr. Duane R. Chicoine, Central Illinois Chapter, and Mr. James L. Mills, Champaign County Chapter, are the official nominees.

As the Engineers-in-Training, Juniors and Students elect their own representative, ballots will be sent only to those three grades of membership at the same time as they are sent out for the Annual Election of State Officers.

COVER PICTURE

Illinois Sanitary Water Board Field Investigation Unit

The cover picture for this month's issue shows the field investigation unit of the Illinois Sanitary Water Board on location at a municipal sewage treatment plant for the purpose of engineering study in plant operation efficiency.

A specific program was initiated in 1950 to assist municipal and industrial waste treatment plants to avail themselves of the Board's stream pollution abatement program by participating in such surveys. During 1951 several investigations were conducted of both municipal and industrial waste treatment plants with the unit shown which was loaned to the Board by the U. S. Public Health Service. The Board has recently completed construction of its own improved mobile unit which will be available for similar operations in 1952.

Mr. C. W. Klassen, member N. S. P. E., Chief Sanitary Engineer of the Illinois Department of Public Health, is Technical Secretary of the Sanitary Water Board.

VOX SECRETARII

Assistant Secretary Roberts

Membership

Membership committees should note that applications processed after November 15th will be presented to the Board of Direction by letter ballot and new members will be elected as of December 1st. The dues they pay when elected on December 1st will pay for thirteen months, up to January 1, 1953. With this added inducement, many applications should be signed up during the next six weeks. An average of ten applications per chapter will boost the total over the 2,000 goal.

Dues Payment

In three short weeks, the 1952 dues statements will be in the mail. Your cooperation in sending in your vote for the new officers together with your check for 1952 dues will save much time and money for the Society. Prompt payment of dues will make it unnecessary for the Secretary's office to send second and third notices. With rising costs and no increase in dues, a few dollars saved here and there will make the difference between a balanced budget and a deficit. Your immediate response will be appreciated.

Ladies' Auxiliaries

At its Ladies' Night program on October 25th, the ladies of Central Illinois Chapter took the initial step toward becoming the first Ladies' Auxiliary of the Illinois Society. It is true that we are in an era of over-organization but when the Decatur ladies discovered that they did not know each other, the need for the group to get together a few times a year was apparent.

The Constitutional Amendments Committee has studied the question and has prepared a model ladies' auxiliary constitution. The model constitution has been duplicated and is ready for distribution. If and when the ladies of your chapter are ready to form themselves into a group, the Secretary's office will be glad to furnish the number of constitutions you need and give any other help necessary.

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SUBSCRIPTION RATES

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Miscellany

Thought for Thanksgiving—drive carefully. Don't let your automobile cook your goose. . . . We have had near perfect engineer's weather this fall. Little rain or frost and warm, sunshiny days. Plenty of time to finish up outside work without interruption. . . . The Illini football team of 1951 is a good example of eleven men working together. They will look good even if they have to lose one or two games.

ANNOUNCEMENT

Mr. Dwain M. Wallace has announced that he has completed the purchase of the Jacob A. Harman, Inc. business in Peoria.

Mr. Harman hung out his shingle as a consulting engineer and land surveyor in Peoria in 1890 and continued in active business until his semi-retirement early in 1951. Mr. Wallace has owned 30% of the company since 1945 and will continue to do consulting engineering and land surveying under the name of Wallace Engineering Company, successor to Jacob A. Harman, Inc. A large percentage of the work of the firm is with "Drainage Districts," drainage problems, municipal engineering and property surveys. Mr. Wallace is retaining the same office with all of the records, data, equipment and books of the Jacob A. Harman Company.

The Society extends best wishes for continued success to one of its longtime and active members.

COST OF LIVING INDEX

The correction factor to be applied to the I. S. P. E. Schedule of Minimum Fees and Salaries was 186.5 for September, 1951. The factor is based upon the U. S. Department of Labor's most recent Consumer Price Index.

Obituary

The *Illinois Engineer* again reports with regret the death of one of the longtime members of the I. S. P. E. Mr. Walter A. Shaw, Wilmette, Illinois, became a member of the Illinois Society of Professional Engineers in 1905, and a member of the National Society in 1938. He served on numerous committees, among them the Committee on Waterworks in 1909, the Legislative Committee in 1920 and 1922 and as a Trustee of the Electrical, Mechanical and Mining Section in 1929.

Mr. Shaw will be missed by all, but particularly by the older members of the Society.

FROM N. S. P. E. LEGISLATIVE BULLETIN Salary Stabilization Board

The Salary Stabilization Board has selected the engineering profession as an area in which to conduct a pilot survey which will cut across all aspects of salary regulation. The Board's Executive Director Joseph D. Cooper in a recent report indicates that members of the engineering profession have, on the whole, been paid on a conservative basis for a considerable period of time. With the acceleration of defense production activities, engineers are now in short supply. There is some evi-

dence of proselytizing. Stabilization of engineers' salaries, consequently, has become a considerable problem which is also related to the general problems of a national manpower policy. Modification of SSB regulations for a more equitable coverage of engineers is confidently expected by many close to SSB.

Some legislative activity dealing with the engineer and salary stabilization may be at hand. It is believed that a measure may be introduced into Congress designed to modify the basic Defense Production Act so that professional engineers will be placed in a position similar to that of doctors or lawyers; namely, entire removal from SSB control when engaged in the practice of their profession in the employ of an engineer or firm of engineers similarly engaged. Because of the general legislative picture and because adjournment is near, it seems improbable that any action will be taken in the near future. The entire question, however, may be reviewed at the next session.

In the meantime, professional engineers, both employers and employees, will have to find a solution for their difficulties in already existing SSB regulations. Among the most recent ones are those dealing with bonuses, cost-of-living formulas, and merit increases.

Recent SSB Rulings and Regulations

A. Bonuses

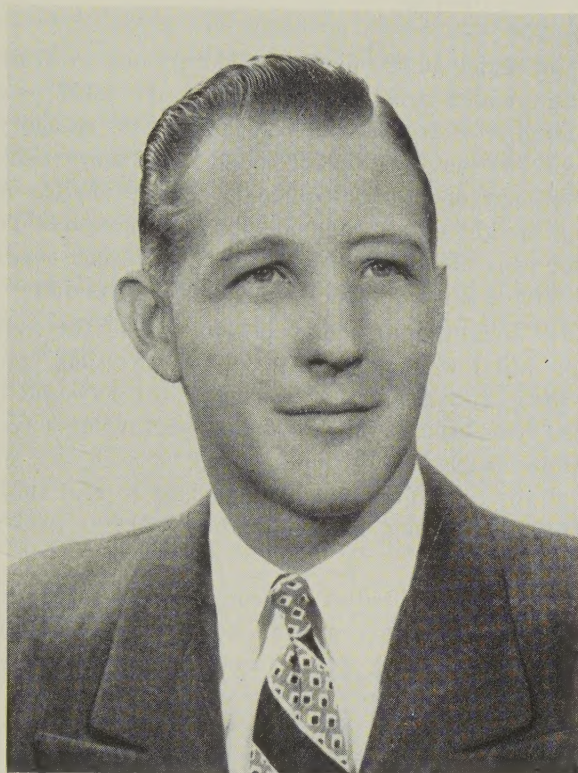
As matters now stand, a bonus may be paid under General Salary Regulation 2 without prior approval of the Board, provided it was one of the three following types, and provided further the plan was in effect on January 25th, 1951: 1) a bonus provided for by contract or written plan may be paid according to its terms. In no case, however, may an employee receive an amount greater than that to which he was entitled on January 25th, 1951; 2) a bonus paid from a percentage of profits, and distributed at the employer's discretion. This fund must not be larger than it was in 1950, or, alternatively, larger than the average of any three selected years between 1946-1950 inclusive. No bonus paid shall be larger than the largest paid any individual during the selected base period; 3) a discretionary bonus set aside in a fund, the division of which is controlled by the employer. This fund is also subject to similar limitations on the size of the bonus "pot," and the amount which may be paid a single individual.

The written plan referred to need not necessarily be a formal contract. It may be established by substantial written evidence such as might occur in the by-laws, or articles of incorporation of a firm, or by a memorandum or other statement in writing which existed prior to January 25th, 1951, and which was in effect on that date. In all cases of doubt it would be well to request the Board in writing for authority to pay a proposed bonus. Improper action may result not only in the penalties set forth by the Defense Production Act, but also in inability to deduct affected payrolls for income tax purposes. The Board has begun to catch up on its backlog, and answers should be forthcoming in a reasonable time.

(Continued on page 6)

Official I. S. P. E. Nominees for 1952

A. D. SPICER FOR PRESIDENT



A. D. Spicer

While the Constitution of the Society makes no provision for such a procedure, the members of the I.S.P.E. have shown great wisdom through the years in training their future officers by advancing them to positions of greater responsibility as they become more familiar with Society business. A. D. Spicer, official nominee for president for 1952, the highest office which the Society confers upon one of its members, is one of those who has thus come up through the ranks.

The work of Mr. Spicer in the Illinois Society is so familiar to the membership that it hardly needs repetition. Becoming a member of the Society and of the Central Illinois Chapter in 1944, he served that chapter as representative to the Board of Direction before he moved to Kewanee where he was largely instrumental in the establishment of the Kewanee Chapter. He was State Membership Committee Chairman for three years, and for the past year he has been vice-president, and as is required with that office, has carried on the duties of Society Comptroller.

Mr. Spicer is an electrical engineer with the Kewanee Boiler Corporation. He has also carried on numerous civic responsibilities, being active in the Kewanee Kiwanis Club, the Kewanee Chamber of Commerce, the Boy Scouts of America, etc. His technical society is the American Institute of Electrical Engineers.

The Society can look forward to a year of progress under the leadership of A. D. Spicer.

RAYMOND G. BRICHLER FOR VICE-PRESIDENT

The choice of Mr. Raymond G. Brichler as the official nominee for Vice-President of the Society during 1952 was a happy one. Mr. Brichler is the right man in the right place. No one would be better able than he to assume the responsibilities of the office, and the southern part of the state has not had one of their members in the Society's highest offices since the presidency of Mr. G. H. Anderson in 1946.



Raymond G. Brichler

Mr. Brichler is an excellent example of the type of member who has been consistently chosen to serve the Society in its state-wide affairs. He has been Vice-President and President of St. Clair Chapter, and is at present Representative from that chapter on the Board of Direction. He has served on many committees: Constitutional Amendment, Membership, Chapter Area, Publicity, etc. He is Alternate Director to the N.S.P.E. As indicated by his past activity, he has a thorough knowledge of Society business and policies.

As far as his professional career is concerned, Mr. Brichler is a graduate of Washington University at St. Louis, and a registered professional engineer and registered structural engineer in Illinois. He is Assistant Chief Engineer with the Alton and Southern Railroad. Other technical and social memberships include the American Railway Engineering Association, the Engineers' Club of St. Louis, and the B. P. O. E.

Mr. Brichler is well prepared to support the present activities of the Society and to initiate new ones.

Heavy Trucking and Its Effect on Highways

M. E. AMSTUTZ, Member N.S.P.E.
Superintendent of Highways, Lake County

The rapid deterioration of the pavements on our main highways has focused the attention of the public on the trucking industry. This industry has become one of our nation's largest enterprises and one of our most convenient forms of transportation. In fact, our entire economy and our methods of doing business have become dependent upon it. Business, as operated today, would almost come to a standstill if all trucks were suddenly removed. However, the question in the minds of all motorists is: "Does the trucking industry pay a fair share of constructing and maintaining the road-way over which it operates?"

The trucking industry is acutely aware of the rising tide of resentment on the part of the traveling public and has attempted by advertising and other means of propaganda to present its case to the people and to prove that it is paying a fair proportion of highway costs. However, it is rather doubtful that the industry has made a real attempt to analyze the entire problem.

The statements issued by the truckers have some basis of truth but do not present an accurate picture of the real conditions. The two main reasons they present for failures are, briefly, as follows:

1. Weather conditions and poor sub-soil.
2. Highway engineers are not abreast of the times in their thinking and have failed to design and construct roads suitable for the traffic.

These statements contain certain elements of truth, but they do not represent the real picture. In discussing them it might be well if we first looked at the whole story of highways and the traffic which flows over them. The greater portion of our system was constructed 20 to 30 years ago, and through these years our entire method of transportation has been changed. The highway engineer has been faced with a constantly changing picture. Not only has traffic increased beyond the estimates of even the most optimistic automobile salesman, but speed and increased loading have gone beyond any foreseeable limit. Thirty years ago there were approximately one-half million motor vehicles registered in the State of Illinois and about 12 per cent of these vehicles were trucks. Few of them had the capacity for loads exceeding three tons—the vast majority were one-half-ton to one-ton trucks. Six years later car registrations had doubled and trucks had increased 240 per cent. Truck capacity had increased about 200 per cent. By 1931 it had increased another 40 per cent, with truck loading again more than doubled. By 1941 the registration of all vehicles in the State was over two million, and today we have over two and a half million motor cars and about a half million trucks.

In 1936 over 75 per cent of all single-unit trucks and buses had a gross vehicle weight (weight of vehicle and

load) of under 10,000 pounds, and only one-tenth of one per cent had a gross vehicle weight of 24,000 pounds. The number of trucks in the 24,000 pounds category increased 700 per cent by 1948. By 1942 approximately 60 per cent of the multiple-axle vehicles had a gross vehicle weight of approximately 60,000 pounds. Today 25 per cent of the Tractor-truck semi-trailer combinations have a gross vehicle weight of 72,000 pounds.

These weight figures may mean little to the average reader, but I would suggest that the next time you are held up at a railroad crossing to wait for a freight train to pass, you look for the maximum loading of a freight car which is usually written in fairly large figures on the side of the car. You may be surprised to find that the permissible loading is rarely above 50,000 to 70,000 pounds.

Weather, undoubtedly, is a contributing factor to the break-down of our pavements. However, it is one of the minor factors. Many of our pavements that have given 20 years of service are in relatively good condition providing they are on residential streets or on highways that have a small flow of truck traffic. If such a road is used as a detour for one of our main routes, it will be but a short time before failures occur. The term "mud pumping" is a relatively new phrase, only about 15 years old. It came into use with the advent of the 18,000 pound axle loading. The condition of "mud pumping" was first observed in the early thirties, but it is now a familiar sight whether you are traveling on an old road or on such modern roads as the Pennsylvania Turnpike. The writer drove over the Pennsylvania Turnpike during the summer of 1950 and the results of over-loading were plainly visible. In fact, it was no longer comfortable to drive on the righthand lane used by the trucks, and this road was designed for heavy traffic.

The Merritt Highway, leading from New York to Boston, has been under continuous traffic during practically the same period as the Pennsylvania Turnpike. It carries a much larger load of passenger and bus traffic than the Turnpike, but no trucks are allowed. The condition of the pavement is excellent. There has been no "pumping action" which is a familiar sight on the Turnpike. The riding qualities are as good as the day the Merritt Road was opened for traffic. Certainly this cannot be said of the Turnpike.

Weather is a contributing factor in creating the condition that causes mud pumping. The subgrade has given way to heavy loading and the voids are filled with water. Part of the fault lies in failure on the part of the engineer to recognize unstable soil conditions at the time of construction. However, the condition would not have resulted if the slab had not been subjected to the force of a heavy impact delivered by a high axle load.

It is also true that little thought was formerly given to sub-soil conditions by the engineer. In fact, it is only recently that our engineering schools have made any endeavor to solve this problem. Roads are now being designed to fit the soils encountered and there are trained "soils engineers" on all primary projects.

It is true that highway engineers were unable to foresee the tremendous increase in highway traffic and the vastly increased loading of trucks. Had the engineer been that clairvoyant, no one would have believed him. As it is, he has at all times had to struggle to keep the sights of the governing body that furnished the funds at a higher level than the ideas of the day. He was ridiculed when he demanded 35-mile-per-hour curves and when he asked for sixty, he had to compromise at a lower figure. It was only a short time ago that any Chamber of Commerce would call on the Governor if the engineer suggested by-passing the center of a town. Should he be condemned for failing to foresee the 70,000 to 90,000 pound juggernaut of today? He has constantly been handicapped by lack of funds. He would willingly design a road for any type and weight of vehicle, if provided the funds.

There is abundant and authoritative evidence that the maximum sizes and weights now permitted by statutes in many states are too high and the enforcement of these laws is quite inadequate. Commissioner Thomas H. MacDonald of the Bureau of Public Roads, in an address before the American Road Builders' Association on February 7, 1949, said:

"Specifically, we are overloading our highways in their traffic volume capacity and in their structural capacity . . . the results are so costly both to individuals and to the public, that they total a disgraceful and extravagant waste in the nation's true economy. From the testimony of these and other highway studies, it is apparent that a relatively small number of extra-large and extra-heavy trucks are imposing an undue burden upon the highways and their other users."

On February 17, 1949, The American Automobile Association said:

"Billions of dollars worth of the nation's finest highways are being pounded to pieces by overweight and overloaded commercial vehicles."

The project now being conducted by the Highway Research Board on behalf of some 11 north central states and the Bureau of Public Roads, commonly known as the Maryland Road Test, will furnish data to determine a means of evaluating the relative effects of various axle loadings. Road Test No. 1 has been completed and it has already demonstrated the effects of single axles, multiple axles, and several loadings ranging from 16,000 pounds to 22,400 pounds per axle. Additional tests will be made this year, and, upon their completion, the data obtained will be evaluated and made available to all interested parties.

The trucking industry is here to stay. It is a very valuable and desirable form of transportation and should be expanded even more. However, it must either

provide the funds for building suitable roadways or be subsidized by the motorist. It is the writer's opinion that the trucking industry has been its own worst enemy. It should approach the problem honestly. It is obviously being subsidized by the motorist and it may be that this is the best method. If that is the case, let the industry openly advocate it and not arrive at that decision by attempting to influence legislators to keep license fees and taxes at a low level. Press reports indicate that the lobbies maintained by the trucking industry in each state capital are among the most influential lobbies of our time, and, apparently, have almost unlimited funds at their disposal. The activities of the lobby have placed the entire industry in an unfavorable light. The situation in Springfield during the past session became so flagrant that a resolution was adopted by the House to investigate the activities of the Truck Lobby. This is certainly not a very enviable position for the industry. If subsidies are not desired, then let the problem be faced and the industry bear its proportionate share of highway costs.

It is hoped that the trucking industry will face the issues involved and will correct the abuses which they have permitted to exist. It should police its members and abide by the load limits that have been established. Too long has the industry permitted its members to grossly abuse the established load limits. I do not refer to violators of a few hundred pounds but to those who carry over-loads of thousands and tens of thousands of pounds. Recently, in Bethlehem, Pennsylvania, a truck was halted that belonged to one of the larger trucking firms; it had a gross weight of 132,000 pounds and the legal limit on that particular highway was 45,000 pounds. A conservative estimate of the damage done by this one truck alone was \$15,000.00, yet the maximum penalty provided by law was less than \$50.00. Here in Illinois last spring, as the frost was leaving the ground, a truck, belonging to one of the regular freight lines, was stopped in the central part of the state with a gross load of 109,000 pounds. I believe he was fined only \$108.00, a mere pittance compared to the damage this truck had inflicted on the road bed.

The trucking industry shows little consideration for the taxpayer and average motorist by continuing its policy of attempting to induce legislators to raise load limits which are already too high and, at the same time, lobby against additional revenue for the construction and maintenance of the roadways which they use. It may become desirable in the future to construct truck lanes for heavier vehicles but, assuredly, such lanes must be built by the user. If the industry believes that it should be subsidized, let it say so openly. Unless a policy of subsidization is desired, the industry should be required to pay its fair share of the costs. The present method is not based on honesty—neither is it fair to other methods of transportation. We all have a stake in the trucking industry. Let us view the problem objectively—face the facts fairly and then arrive at a just solution.

FROM N. S. P. E. BULLETIN

(Continued from page 2)

B. Costs-of-Living Increases

When SSB adopted the Wage Stabilization Board's General Wage Regulation 8 governing cost-of-living increases, that regulation dealt only with pre-freeze contracts and plans. Although WSB has since relaxed its own regulation to permit raises for workers not covered by pre-existing escalator or similar plans, there has been no corresponding revision of the SSB regulation. The new differential, consequently, is not available to salaried employees under SSB jurisdiction. It is believed that the entire subject will soon be studied for possible revision of what appears to be an inequitable practice.

C. Merit and Length of Service Increases

In addition to other permissive salary adjustments, General Salary Regulation 3, issued September 17th, 1951, permits certain increases for merit and length of service. Likewise it permits limited raises for promoted or transferred employees, and for trainees and newly employed workers. The new rules, in accordance with established SSB policy, closely follow the rules for wage earners. The greatest difference is that the total amount of increases for salaried personnel for any given year is limited to 6% of the payroll attributable to all SSB controlled employees. SSB, on the other hand, may permit a greater amount if it can be justified under an established plan or practice.

An employer with established rate ranges, demonstrable by written evidence as having been in effect on January 25th, 1951, or established in accordance with other rulings of the SSB, may compute the amount of merit or length of service raises he may give in one of the following ways: 1) from his already established plan for increases; 2) from data derived from a representative payroll date during the year 1950; 3) by using 6% of his SSB payroll computed from the payroll date nearest January 15, 1951. No matter which way he computes his information, the total amount to be used for increases may not exceed 6% of the total SSB controlled payroll for any calendar year. The amount determined may be distributed as desired, provided that no individual employee is paid in excess of the rate range established for his job.

Employees paid on a personal or random rate basis—described as being the method of payment used in the absence of an established plan—may be given similar adjustments within the 6% limitation for their group as a whole. Individual employees within the group, however, may not be given increases in excess of 10% of their salaries. The 10% limitation may be, in some cases, somewhat more restrictive than the ceiling placed on those falling in the established rate range group.

The problem of an increase in salary for the employee who does not fall within a group of any kind does not appear to be covered, and presumably will require an individual SSB ruling.

Increases for newly-hired or promoted employees, if given within 120 or 90 days respectively, may be awarded without counting the increases as merit or length of service raises.

Defense Production Administration

As part of the construction conservation program DPA has recommended a set of standard design practices for use by engineers and architects in the construction industry, and has adopted a general program for the conservation of scarce materials.

This action is based upon findings by the National Production Authority as set forth in a memorandum issued early this month. In line with proposals of DPA's sub-committee on Building Construction, composed of specialists from 17 Federal departments and agencies, NPA recommended that architects and engineers incorporate in their designs a number of practices for conservation of critical materials. NPA is now considering an amendment to its Controlled Materials Plan Regulation 6 to incorporate the principles suggested.

In addition to the general principles established in the memorandum, NPA also identified seven design standards as "good practice, considered acceptable to most engineers, architects, building officials, and municipalities." These are:

For structural steel, "Specification for the Design Fabrication of Structural Steel" of the American Institute of Steel Construction; for reinforced concrete, "Requirements for Reinforced Concrete" of the American Concrete Institute; for lumber, "Specifications for Stress Grade Lumber" of the National Lumber Manufacturers' Association.

For plumbing, "National Plumbing Code," issued jointly by NPA and the Housing and Home Finance Agency; for electrical work, "National Electric Code of the Fire Underwriters"; for light gage steel design, "Light Gage Steel Design Manual"; for open web steel joist floor or roof systems, "Standard Specifications for Open Web Steel Joist Construction" of the Steel Joist Institute.

The general principles set forth in the recommendation may be obtained from the U. S. Department of Commerce, National Production Authority's memorandum dated September 6th, 1951, and entitled "Memorandum on Conservation of Controlled Materials in Construction."

Further details concerning the above memorandum may be found in the Defense Production Record, the official weekly bulletin of the Defense Production Program. The Defense Production Record, available at \$2.50 a year from the Government Printing Office, is an excellent guide to the controls program, and comes as close as anything can in reducing to order the numerous and difficult regulations.

The great trouble today is that there are too many people looking for someone else to do something for them.

—Henry Ford

DEDICATE NEW WATER RESOURCES BUILDING

The Illinois State Water Survey Division dedicated its new laboratory and office building in conjunction with a three-day Conference on Water Resources sponsored by the Division and held at the University of Illinois on the campus at Urbana-Champaign, October 1, 2, and 3.

The Conference was divided into three sections, hydrology, chemistry of water treatment, and weather-radar, the sessions in all three sections running concurrently. The hydrology sessions were held in the Illini Union Building, the treatment sessions in the new East Chemistry Building, and the Weather-Radar conference at the Robert Allerton Estate.

The objectives of the conference were a better understanding of the development and use of fundamentals in water resource design and planning, and the orientation of collection of basic information. To this end over 70 scientists presented papers at the three-day meeting. Papers in the hydrology section were presented by Albert S. Fry, Chief Engineer, Hydraulic Data Branch, TVA, Knoxville, Tenn., who spoke on "Hydrology and the Hydraulic Laboratory." Fry discussed the typical hydraulic laboratory and showed how the Water Survey's new hydraulic laboratory could be used to solve many of the important problems of Illinois' water resources.

Hans A. Einstein, Associate Professor of Mechanical Engineering, University of California, Berkeley, California, spoke on "Bed Load Function for Sediment Transportation in Open Channel Flow." His discussion which included a formula for sediment transport evoked considerable discussion from Vito Vanoni, Associate Professor of Hydraulics, California Institute of Technology, Pasadena, California, and Ralph W. Powell, Professor of Mechanics, Ohio State University, Columbus, Ohio.

At the Tuesday session on "Sedimentation Problems" a paper by O. W. Chinn, Director, Division of Food Control and Water Use, Department of Conservation, Frankfort, Kentucky, was given considerable attention. Chinn asked for the streamlining of flood control and sediment control programs to be financed chiefly through federal funds but carried out with close state cooperation and with the fewest possible federal agencies involved. Referring to the Missouri Valley Authority, Chinn said, "The Missouri Basin Comprehensive Plan has so many agencies involved and such a multitude of generalities, plans, and details covering everything from major stream improvements to gopher eradication, and teaching people how to use electricity, that it appears it may never produce any action of benefit to speak of, and may eventually collapse of its own weight."

At the same session, William F. Guyton, a consulting engineer from Austin, Texas, spoke on "Analysis and Use of Groundwater Data." "There is no national water shortage," said Guyton. Guyton showed that intelligent use of our water resources would prevent serious shortages which, he pointed out, are definitely local in character in Illinois. Two other papers by Richard Hazen,

New York Consulting Engineer, and Stifel W. Jens, St. Louis Consulting Engineer, rounded out the basic data use part of the program.

The final hydrology session had to do with "Water Use." Louis R. Howson, Chicago Consulting Engineer, told the Conference that "America's fresh water supplies are not vanishing and shortages are neither universal nor increasing." Howard E. Degler, Kansas City Private Water Conservation Engineer, predicted widespread use of chemical sea-water freshening, particularly for coastal cities within 25 years. Along the same line Paul W. Reed of the U. S. Water Pollution Control Division in Chicago told the Conference that fresh water supplies are the backbone of our national existence and must not be wasted.

The Chemistry sessions were held on only one day, Tuesday, October 2, and were devoted to four addresses. In the first one, H. H. Uhlig, Director, Corrosion Laboratory, M. I. T., Cambridge, Massachusetts, spoke on "Corrosion Fundamentals." Professor W. H. Rodebush of the Physical Chemistry Department, University of Illinois, reported that his department and the State Water Survey have learned some more things about water and ice behavior during the last 15 years of co-operative research. He spoke of finding that free water in some plants crystallizes in temperatures above the freezing point, which is why some varieties of corn are killed by temperatures around 40° F. Also at the chemistry session papers by A. S. Behrman, Chicago Consultant, and F. G. Straub, Research Professor of Chemical Engineering at the University of Illinois, were heard.

The Weather-Radar Conference at the Robert Allerton Park was attended by 133 scientists from all over the United States and three foreign countries. While most of the papers presented at the Weather-Radar conference were of a highly technical nature, they all aimed at the use of radar in solving the more perplexing weather problems. At M. I. T., for instance, the Weather-Radar group is interested in why it rains. The Illinois State Water Survey Weather-Radar scientists are interested in how much rain falls when it is raining, in addition to the areal distribution of rain.

Highlight of the conference was the dedication banquet on Tuesday evening in the Illini Union at which Director C. Hobart Engle of the Department of Registration and Education delivered the key to the new Water Resources Building to a representative of the University of Illinois. Three thousand of the nation's top scientists were invited to the conference and over 500 attended during the three-day session.

The papers presented at the conference are to be published in bulletin form at a later date. Address inquiries to Illinois State Water Survey Division, University of Illinois, Champaign, Illinois.

Moral courage is obeying one's conscience and doing what one believes to be right in the face of a hostile majority.
—Dr. John Watson

News From Chapters

CHICAGO CHAPTER

Prepared by

THEODORE OLSON

Room 1020, 160 N. LaSalle Street, Chicago 1, Ill.

Personals

Frank W. Edwards, Vice-President of the Chicago Chapter, has been named general manager of the greatest engineering celebration ever attempted, the Centennial of Engineering 1952.

This celebration is to cover all engineering and plans are in the making to commemorate the founding 100 years ago of the First National and Civilian Societies.

Mr. Edwards, Director of the Department of Civil Engineering at the Illinois Institute of Technology, will be on leave for approximately one year to handle this important work, which will start in July of next year and continue on through August and September.

Elmer I. Fiesenheisher, Illinois Tech., and Harold F. Sommerschild, Portland Cement Association, attended the first United States conference on pre-stressed concrete held at M. I. T. This conference was sponsored by the ACI, AIA, AREA, ASCE, Associated General Contractors of America and PCA.

William O. Swinyard gave a very interesting talk on the history and development of television and discussed the merits and the present status of the several methods being considered for the broadcasting and receiving of colored television.

Mr. Virgil Gunlock informed the members present that the I. S. P. E. was now a sponsor and affiliate of the Engineering Societies Personnel Service. He outlined the various benefits and help this personnel service offers to the engineer in obtaining employment or changing positions.

President George DeMent introduced two new members who were present at this meeting: Messrs. Allen Drachman and A. L. Sanders. The president also introduced W. A. Rose, K. J. Burkhardt and R. J. Altemus of Lake County Chapter who were present at the meeting.

October 2, 1951—Meeting

Mr. Virgil Gunlock, President of the I.S.P.E., gave a talk on "What Can We Do Now About Street Traffic." Mr. Gunlock, President of the Chicago Street Traffic Commission, gave a very interesting talk, and I am sure that all of the members present, and guests, left the meeting with a much greater understanding of the traffic conditions in the City of Chicago.

George DeMent, President of the Chicago Chapter, introduced the following new members who were present at this meeting: Chester A. Arents, Wm. H. Jacobs, Henry O. Johnson, and Carl J. Kopp. Mr. DeMent also stated that the next meeting, for November 6th, would be Past Presidents of the State Association Night. At

this meeting there will be present all of the past presidents residing in the Chicago area.

Membership Campaign

A review of the records of the new members in I.S.P.E. for the year indicates that the Chicago Chapter is leading all chapters in membership obtained, with a total of 23 new members. It is gratifying to find this to be true. The membership committee is most appreciative of the cooperation of our members in producing this result.

It is apparent from what has been done that it is possible for us to go over the top of the goal of 60 new members for the year. We would like to request that each member extend their efforts to help us realize our goal.

At the beginning of the year, your committee stated it felt this goal was not impossible if every member would contribute to the effort. We asked each of you to obtain one application. If you have not already done so, will you please make an effort in that direction. For those of you who have obtained an application, we say "thank you," and request your continued cooperation. You will be doing your friend a real favor to enlist him into membership in the Society. You will also contribute a real service to your Society. Our voice as a profession will only be as loud as the number of members we possess.

Illinois Valley Chapter

A business meeting and dinner was held at the Kaskaskia Hotel at La Salle, Illinois, on September 25, 1951.

Mr. J. B. Moran called the meeting to order at 8:30 p. m. and introduced the guests. Twenty-three members and five guests were present.

The minutes of the meeting of June 6th were approved.

Mr. F. L. Dunavan, Chapter Representative, informed the members as to the latest news from the Secretary's office, and the increase and decrease in membership in the different chapters. Our chapter has an increase in membership of 8½ per cent over 1950.

Mr. Staats, chairman of the Membership Committee, gave his opinion that there would be a considerable increase in membership in the following months.

Mr. R. G. Kenyon made the motion and seconded by Mr. McGonigal that the annual Ladies' Night Party be held November 27th instead of in January as in the past. Motion carried.

Mr. Moran then introduced Mr. McClearnand Butler, manager of the Illinois Bell Telephone Company. Mr. Butler had very fine pictures showing the vast extent of the construction required for the services we now have.

The meeting adjourned at 10:30 p. m.

E. DEAN ANTROBUS, *Secretary*

Central Illinois Chapter

Forty-eight members and guests of the Central Illinois Chapter of the Illinois Society of Professional Engineers

gathered at the Staley Club House on Thursday, Sept. 27, 1951, for a dinner meeting.

The business session was conducted by President Herman Dorn who asked J. R. Gardner to explain some of the changes in the procedure needed for the election of State Board members by letter ballot before Oct. 31. Motion was made, seconded and carried that the proposed changes be accepted.

Due to the vacancy for a Junior Representative on the State Board of Direction, the name of Duane R. Chicoine was selected by a unanimous ballot to be submitted for possible election by that board.

The president stated that the Central Illinois Chapter had been asked to express its endorsement of the "Crusade for Freedom" now being carried on in Decatur. He had found after careful investigation that this was a very worthy project and merited our endorsement. Motion was made by J. L. Howie that we decline to take action either for or against this matter at the present time. Motion was seconded and carried.

The secretary was asked to explain briefly the possibility of organizing a Ladies' Auxiliary for our own chapter as outlined by our Assistant State Secretary, P. E. Roberts, in the August issue of the Illinois Engineer. National Vice-President John D. Coleman of Dayton, Ohio, who was here for our June meeting, had also given us some of his experiences in helping to set up such units over the nation.

Motion was made, seconded and carried that we take the necessary steps to call a meeting of some of our members and their wives to discuss the possible formation of such an Auxiliary. The president appointed Mrs. F. E. Troxel as chairman pro tempore.

Program Chairman E. O. Crawford announced that Oct. 25th would be Ladies' Night and that we expect to have a good colored travel film probably on India, Egypt, Siam or other interesting country.

Mr. Jack Berutich of the G. E. Company explained to us the arrangements made for our inspection trip through their local Plastics Plant. This trip proved to be quite a sizeable one and we were surprised to see the wide range in sizes of the products they are manufacturing. We understand that one of the largest presses in the country is now being installed in this plant.

The Central Illinois Chapter wishes to express its appreciation to the G. E. Company for the privilege of making this visit to their plant.

F. E. TROXEL, *Secretary*

Kewanee Chapter

The October meeting of the Kewanee Chapter, Illinois Society of Professional Engineers, was held in the dining room of the Harm's Hotel, Rock Island, Illinois, on Oct. 16, 1951. Meeting was called at 7:00 p. m., which started off with a fine chicken dinner. This was a joint meeting with the Tri-City section of the American Society of Civil Engineers who shared in the program and arrangements of the meeting.

President Lee I. Osborn of the Kewanee Chapter presided, after introductions around the table. President Osborn requested that the minutes of the last meeting be read and approved; if no other urgent business was on the docket, the meeting would proceed with the program of the evening.

Mr. Charles H. Young, consulting engineer, retired, gave a talk on the origin and solution of our flood problems on the Mississippi River. Mr. Young's lifetime experience in river, harbor and drainage work throughout the nation made possible the splendid talk he gave. In his remarks he traced the formation of all our storms and plotted their path across the great Mississippi basin which produces the world's grain, and showed how excessive rain produced floods following a cycle repeated every 13 or 14 years. Mr. Young's talk brought out many points in rainfall and flood control and was enjoyed by all.

The second speaker of the evening was Mr. Ingeman Clausen, civil engineer, Corp of Engineers, U. S. Army, who talked on "The Biggest Apartment Building in the World, Vacant for 800 Years." Mr. Clausen described and illustrated by color pictures the ruins of the ancient cliff dwellers and gave a story on how these buildings were constructed and also described how far the material was transported from the quarry and forests to the site.

President Osborn announced that the next meeting of the Kewanee Chapter would be held in Galesburg on Nov. 18th, possibly at the Harbor Lights dining room.

President Osborn and the chairman of the A. S. C. E. group expressed their thanks for the splendid turn-out and their desire to hold more joint meetings in the future.

The meeting adjourned at 10:05 p. m., with an attendance of 85 members.

C. F. BATES, *Secretary*

Joliet Chapter

The Joliet Engineers' Club held its regular meeting at Little Jack's Restaurant on the Plainfield Road, Tuesday evening, Oct. 16, 1951. The meeting was called to order at 8:00 p. m. by President William S. Gray. At the business meeting, Treasurer W. K. Waltz presented a financial report that showed a balance on hand of \$129.45.

Assistant Secretary P. E. Roberts presented a past president's plaque to Mr. Jim Whelan in recognition of services to the Society.

The program was presented by the U. S. Steel Company with Sanger Brown as narrator. The program was entitled "Steel's Golden Age" and gave a history of the steel company from its beginning up to the 50th anniversary year.

The next meeting night was designated as Ladies' Night and Assistant Secretary Roberts promised to send information on the Ladies' Auxiliary organization for presentation at this meeting.

The Secretary read the minutes of the meeting held in September and the motion to approve the minutes was made by C. M. Ginter and seconded by Sanger Brown. Carried unanimously.

The meeting was adjourned at 9:15 p. m.

WILLIAM S. CHANEY, *Secretary*

DuKane Chapter

The Red Lion Inn was the setting for our regular monthly meeting of Oct. 18, 1951, with a rainy night causing only 15 members and guests to venture out. After a tasty roast beef dinner, guests were introduced, and the business meeting was called to order.

The minutes of the last regular meeting and the special meeting of Sept. 20th were read and approved.

A nominating committee consisting of Engineers W. M. Ross, V. H. Kasser, and C. A. Treadwell was unanimously elected and submitted the following slate of officers for the ensuing year:

For President—Engineer D. E. Dreier

For Vice-President—Engineer W. A. Rakow

For Secretary-Treasurer—Engineer G. M. Booth.

The election will be held at the November meeting and additional nominations from the floor will be recognized.

The evening's program was presented by a representative of the Illinois Bell Telephone Company in the form of a movie entitled "Trial by Fire." This movie depicted the disastrous fire of Dec. 14, 1946 which destroyed the River Grove (Ill.) exchange and then illustrated the tremendous effort put forth by 'phone company employees to restore service, first to the most important public functions, then to private subscribers. Emergency service was established by mobile units, and all service was restored by Christmas day.

Another short reel in color showed beautiful vacation spots and the advantages to be had by making travel arrangements by telephone.

Meeting adjourned at 8:50 p. m.

GEORGE M. BOOTH, JR., *Secretary*

Madison County Chapter

Thirty-nine members and guests attended our meeting July 10, 1951, at the Edwardsville Gun Club. Mr. Kent Shell and Mr. Roberts of the Harnischfeger Corporation presented movies and talked on the subject of highway stabilization. The use of their single-pass types of machine was illustrated, in both soil-cement and soil-bituminous methods. Their subject was of particular interest to members of both the State and County Highway Departments, who attended in good number. Refreshments followed adjournment of the meeting.

* * * *

On Aug. 14, 1951, sixteen members and guests met in the air-conditioned conference room of Alton Boxboard Company to hear Col. Fred Ressegieu, District Engineer of the St. Louis District, U. S. Engineers. His talk on

"Flood Control" was most timely, considering the disastrous events of the previous month. For illustration of the work covered, a sound-color film was shown following the talk. The meeting was followed by refreshments in the Alton Boxboard Company plant cafeteria.

* * * *

In the afternoon of Sunday, Aug. 19, 1951, the Family Picnic of Madison County Chapter was held at Moonlight Tourist Court near Troy. Program Chairman Graham was ably assisted by Louis and Clara Burg in making arrangements, through the courtesy of Mr. and Mrs. Hartman, the owners. Facilities included badminton, corkball, croquet, horseshoes, sandpile, and swings. Total attendance was twenty-three, some of whom won prizes in other contests of skill and artistry.

* * * *

A regular meeting was held Sept. 11, 1951, in the Lanham School building near Collinsville. Movies entitled "Build With Steel" and "Building for the Nations" were shown. The latter showed various steps in both the fabrication and erection of the United Nations Secretariat Building. This steelwork was put up in 97 working days and, with normal maintenance, the building should "last a thousand years," according to our speaker, Mr. N. J. Law, of the American Institute of Steel Construction. Mr. Law is an old friend, having conducted our group on a tour of the East St. Louis bridge shortly before its completion about a year ago. In addition to the speaker, five guests and eleven members attended. Art Adams, of our Executive Committee, arranged for our use of this fine, new school building, the projector, and the refreshments which followed the meeting.

* * * *

The St. Louis Shipbuilding and Steel Company was our place of meeting on the night of Oct. 9, 1951. Twelve members and three guests of Madison County Chapter were "taken in tow" by Chief Engineer A. R. Parsons, assisted by Mr. Ed. Renshaw, on a conducted tour of the shipyard. Divided into two groups, we were shown the special features in modern design of barges and tow-boats for transportation on the inland waterways. Though many of us live on the banks of the Mississippi, we found a lot to learn about diesel-powered, streamlined tow-boats with variable-pitch propellers, radar-equipped pilot houses, electric-heated quarters, etc. Although no regular business session was held at this meeting, the members and guests expressed their feeling that this tour was one of the highlights of the chapter's activities.

* * * *

A special meeting was held Saturday morning, Oct. 27, 1951, for an inspection trip through the Alton Brick Company plant, at Alton. Mr. Owen Cross, Superintendent, started with the sources of raw material, which include both open quarry and underground clay mine. The operations of blending, grinding, screening, storage,

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"pugging" and de-airing were discussed, after which one of the brick-machines was seen in operation. After drying, one of two methods of "burning" is used. The company operates a producer-gas-fired "continuous" kiln of fourteen chambers, and also a modern "tunnel kiln" which uses natural gas.

Mr. Pfeifferberger, Ceramic Engineer, then took us through the block plant where they make steam-cured concrete blocks, using a lightweight aggregate of burned fire-clay, in a machine which is a marvel of automatic operation. Recent developments here include a thermoplastic glaze finish available in pastel shades—a finish which retains the acoustical properties of the plain block.

Again, those taking the trip expressed satisfaction over the time so well spent.

L. K. MEYER, *Secretary*

The solid foundations of any organization are laid by men who know how to overcome obstacles. Trials and tribulations, of themselves, don't count so much as does the achievement in overcoming them.

—The Pick-Up

SURVEY REVEALS INADEQUATE BRIDGES

Only three of Ohio's main through routes are capable of carrying a full legal load from border to border across the Buckeye State.

That's because Ohio's older bridges, subjected to our ever-increasing flow of automobiles and heavy trucks, are failing under traffic.

An official survey indicates that one out of every four of the State's 9,690 bridges are "either too weak or too narrow, or both, to adequately serve present day traffic." In 1948 there were 37 complete bridge failures; in 1949 there were 36 failures and 116 partial failures; in 1950 there were 43 complete failures and 109 partial failures.

The State Highway Department is now in the process of posting all weak bridges on the state system and approximately 1000 have been posted to date. This work is not yet complete and the total number is expected to be well over 1500.

Prejudices are rarely overcome by argument; not being founded in reason they cannot be destroyed by logic.

—Tyron Edwards

Engineering Societies Personnel Service, Inc.

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POSITIONS AVAILABLE

Recent Graduate. M.E. Age: up to 30. 0-2 years exp. Knowledge of rolling mills helpful. Duties: machine designing and drafting work on rolling mill equipment. Company may negotiate on fee. Salary: \$300 month. Location: Chicago. R-8294

Draftsman. Age: up to 50. 1 plus year exp. drafting power plant or piping work. Duties: drafting piping and heating plant work. Company may pay the fee. Salary: up to \$2.75/hour. Location: Chicago. R-8295

Production Control Supervisor. Age: up to 50. 2 plus years exp. supervising sheet metal production operations. Knowledge of welding, grinding, press, lathe and assembly work on job shop operations. Duties: operating production control system on job shop sheet metal products. Company may negotiate fee. Salary: \$6500/year. Location: N.W. Chicago suburb. R-8296(a)

Chief Product Engineer, M.E. Age: up to 55. 3 plus years experience in sheet metal product development in filtering field. Knowledge of stainless and mild steels and drafting routines and practices. Duties: developing new filtering products. Company may negotiate fee. Salary: \$7500/year. Location: N.W. Chicago suburb. R-8296(b)

Office Engineers. C.E., M.E., or E.E. Age: 23 plus. 0 to several years experience. Duties: work will be on drawing board drafting and design on municipal, bridges or waterworks projects. Company will pay fee. Salary: Open. Location: Chicago. R-8297

Designer—Machine. M.E. Age: 40 plus. 10 years experience designing high speed automatic machinery. Knowledge of packing or paper converting machinery. All board work designing automatic machinery. Company will pay the fee. Salary: \$7000-\$8000. Location: Chicago. R-8298

Construction Engineer, M.E., C.E., M.E. or E.E., junior and senior. Some experience in industrial building design, structural, electrical, plumbing or ventilating. Salary: \$4500-\$6500/year. Location: Chicago. R-8299

Motor Design and Group Leader, E.E. 8 years plus experience designing fractional h.p. motors. Duties: supervising group of A.C. and D.C. fractional h.p. motor designers. Salary: \$7200-\$8200/year. Location: Michigan. T-8900(a)

Administrative Engineer, Eng. Degree. Will be at section head level and will have under his direction the reproduction work, releases, records, equipment, library, control files and associated activities. Must have had previous engineering department experience and 3 or more years in administrative capacity.

Salary: \$4800-\$5300/year. Location: Michigan. T-8300(b)

Metallurgist or Metallurgical Engineer. 4 years in light metals and familiarity with Government specifications relating to heat treating, plating, finishing magnafluxing, etc. Salary: \$5200-\$6800/year. Location: Michigan. T-8300(c)

Standards, E.E. or M.E. 5 years experience setting standards and processes in aircraft industry. Salary: \$5200-\$6800/year. Location: Michigan. T-8300(d)

Service Engineers, Eng. Degree. 3 plus years experience in field service work in airplane, engine or aircraft accessory industries. Probably extensive traveling. Salary: \$5200-\$6800/year. Location: Michigan. T-8300(e)

MEN AVAILABLE

Field Eng. C.E. 22. Seven mos. Jr. Designer, elementary design of concrete structures and design of sewer. Four mos. partner, estimate, sell, build new and rebuild concrete foundations, driveways, floors, stairs and sidewalks. \$5200. Chicago. 197PE

Civil Engr. C.E. 24. Two and one-fourth yrs. estimating, design and detailing of misc. iron-work and piping hangers for large steam generating stations. \$4750. Midwest. 198PE

Machine Designer. 30. Ten yrs. design plant, production machinery, plant layout, material handling and piping. Chicago. \$5000. 199PE

Field Engr. C.E. 24. Seven mos. structural eng. layout, design and prepare all drawings for builds. Five mos. field eng., surveyor, inspector, foreman of housing project. \$3800. Midwest. 200PE

Mech. Designer. M.E. 25. Four mos. mech. designer of heavy machinery. Three and one-half mos. inspector on production line. \$3900. Chicago. 201PE

Construction Supt. B.A. 54. Two yrs. constr. advisor to check materials, costs and men's work. One and one-half yrs. superintendent, supervise construction. One and one-half yrs. engineer to evaluate buildings for condemnation. Two and one-half yrs. resident eng. supervise design. \$10,000. Midwest. 202PE

Drafting. Arch. Eng. 29. Seven mos. drafting plan kitchen layout. Three mos. drafting, structural and simple arch details. Six mos. secretary to mgr. Western Ry. Sales. One yr. apprentice appraiser. One yr. construction loan payout man. \$225.00 mo. Midwest. PE

Sales Eng. M.E. 40. Four years sales technical service petroleum marketer involving

cutting and grinding coolants, other metal working products. Six yrs. sales engineering industrial lubricants. \$8000. Chicago. 204PE

Electrical Designer or Lighting Designer. M.S. 26. Five yrs. industrial electrical distribution. \$5700. Midwest. 205PE

Field Engr. or Appraisal. C.E. 37. Sixteen mos. price trending on mechanical equip. Thirty-four mos. interpret drawings and specifications for building contractors, check proposals from contractors. \$4800. Midwest. 206PE

Machine Designer. 34. Four yrs. nine mos. analyzing the production order, layout mech. machine, layout of presses, detailing structures. Four and one-half yrs. mech. layout of floating dry docks. \$6,000. Midwest. 207PE

Arch. Drafts. B.S. 72. Seventeen months drafting and detailing. Seven months engineering problems. Six mos. detailing and designing commercial work. Two yrs. designing Lunging ways and miscellaneous problems. Chicago. \$4400 yr. 208PE

Master Mechanic or Mfg. Engr. 43. Seven mos. directed work of machine shop, die shop, trouble shooting on punch press. Eight mos. instrument maker, making laboratory equip., helped engineering dept. on drafting board. One yr. making automatic machinery which makes surgical cotton sponges. Two mos. die making. \$7000. Chicago. 209PE

Gen. Mgr. Metal Working. E.E. 56. Two yrs. design teletypewriters and electronic communication equip. Four yrs. chief eng. research in powdered metals and sound reproduction equip. Four yrs. eng. and wks. mgr. of deep draw development for shell and case production. Two yrs. development of powdered iron and copper bearings. \$9000. Chicago. 210PE

Field Engineer. C.E. 49. Six yrs. on private construction. Fifteen yrs. field and office eng., water way construction and maintenance, chief of party, land and river surveys. Ten mos. promotion and inspection of municipal paving projects. Thirty-nine mos. inspector of concrete, paving, roads, bridges and material. \$5200. Chicago. 211PE

Field Const. Mgr. 53. Four yrs. seven mos. mgr. of field force, taking bids, letting contracts, supervising contractors. Nine mos. arch. rep. in construction of New York state housing project for veterans. Twelve yrs. Adm. Supvsr. Arch. Div., job captain, spec. writer, and Admin. Spvsr. Two yrs. constr. mgr. complete charge of design. \$10,000. Chicago. 212PE